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मानक

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IS 14549 (1998): Hexaconazole, Technical [FAD 1: Pesticides and Pesticides Residue Analysis]



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“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक

हेक्साकोनाजोल, तकनीकी — विशिष्टि

Indian Standard

HEXACONAZOLE, TECHNICAL —
SPECIFICATION

ICS 65.100

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

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Price Group 1

FOREWORD

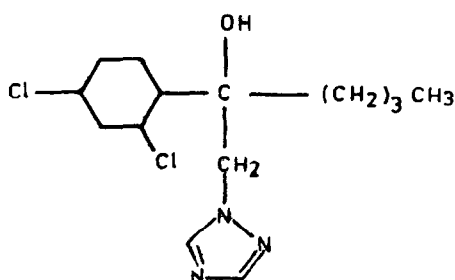
This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Pesticides Sectional Committee had been approved by the Food and Agriculture Division Council.

Hexaconazole is the common name accepted by the International Organization for Standardization (ISO) for (RS)-2-(2, 4-dichlorophenyl)-1-(1H-1, 2, 4-triazol-1-yl) hexane-2-ol. The empirical and structural formulae, molecular mass and LD₅₀ values of hexaconazole are given below:

Empirical Formula
C₁₄H₁₇Cl₂N₃O

Structural Formula

Molecular Mass
314.2



STRUCTURAL FORMULA

Acute Oral LD₅₀ for rats > 5 000 mg/kg b.w.
Acute Dermal LD₅₀ for rats > 5 000 mg/kg b.w.

Hexaconazole, technical is employed in the preparation of fungicidal formulations.

The product has been registered for production and use in the country under the provisions of *Insecticides Act*, 1968 and Rules framed thereunder. In preparation of this standard, due consideration has, therefore, been given to the provisions of the Act and the Rules framed thereunder as well as the *Standards of Weights and Measures (Packaged Commodities) Rules*, 1977. However, this standard is subject to the restrictions imposed under these wherever applicable.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

HEXACONAZOLE, TECHNICAL — SPECIFICATION

1 SCOPE

This standard prescribes the requirements and methods of sampling and test for hexaconazole, technical.

2 REFERENCES

The following Indian Standards contain provisions which through reference in this text, constitute provision of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	Title
1070 : 1992	Reagent grade water (<i>third revision</i>)
6940 : 1982	Methods of test for pesticides and their formulations (<i>first revision</i>)
8190 (Part 1) : 1988	Requirement for packing of pesticides: Part 1 Solid pesticides (<i>second revision</i>)
10946 : 1996	Method of sampling for technical grade pesticides (<i>first revision</i>)

3 REQUIREMENTS

3.1 Description

The material shall be in the form of off-white to pale yellow amorphous powder.

3.2 The material shall also comply with the requirements given in Table 1.

4 PACKING

The material shall be packed in mild steel drum, HDPE or fibreboard drums with polyethylene liner of thickness not less than 0.62 mm. The general requirements given in IS 8190 (Part 1) shall also be followed.

5 MARKING

5.1 The drums shall be marked legibly and indelibly with the following information:

- Name of the material;
- Name and address of manufacturer;
- Batch No. or Code No.;

- Date of expiry;
- Date of manufacture;
- Net mass in kg;
- Hexaconazole content, percent (*m/m*), as registered under the provisions of *Insecticides Act*, 1968 and Rules framed thereunder; and
- Any other information required under the *Insecticides Act*, 1968 and Rules framed thereunder; and *Standards of Weights and Measures (Packaged Commodities) Rules*, 1977.

Table 1 Requirements for Hexaconazole, Technical
(Clause 3.2)

Sl No.	Characteristic	Requirement	Method of Test, Ref to	
			Annex of This Standard	Clause No. of IS 6940
(1)	(2)	(3)	(4)	(5)
i)	Hexaconazole content, percent by mass, <i>Min</i>	92.0	A	—
ii)	Moisture content, percent by mass, <i>Max</i>	1.0	—	4.2
iii)	Acidity (as H ₂ SO ₄), percent by mass, <i>Max</i>	1.0	—	11.3.2
iv)	Material insoluble in acetone, percent by mass, <i>Max</i>	0.5	—	9.1

5.2 BIS Certification Marking

The product may also be marked with the Standard Mark.

5.2.1 The use of the Standard Mark is governed by the provisions of *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

6 SAMPLING

Representative samples of the material shall be drawn according to IS 10946.

7 QUALITY OF REAGENTS

Unless specified otherwise pure chemicals and distilled water (*see* IS 1070) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

ANNEX A

[Table 1, Item (i)]

DETERMINATION OF HEXACONAZOLE CONTENT

A-1 PRINCIPLE

Hexaconazole is dissolved in chloroform along with internal standard and determined by Gas liquid chromatograph equipped with flame ionization detector (FID).

A-2 APPARATUS

A-2.1 Gas Liquid Chromatograph (GLC)

Equipped with a FID and a printer-plotter-cum-integrator. The suggested operating parameters are given below which may be varied provided standardization is done:

Column — SS, 100 cm length $\times$ 2 mm ID packed with 5 percent OV-101 on chromosorb WHP (80-100 mesh).

<i>Temperature</i> — Column oven	200°C
Injection port	250°C
Detector	300°C

Gas Flow—Carrier gas (Nitrogen) 30 ml/minute.
Hydrogen 30 ml/minute; air 300 ml/minute.

A-2.2 Volumetric Flask—50-ml capacity.

A-2.3 Micro Syringe—2 μ l.

A-3 REAGENTS

A-3.1 Chloroform—AR grade.

A-3.2 Hexaconazole Reference Standard—of known purity.

A-3.3 Internal Standard—Dibutylphthalate, AR grade.

A-4 PROCEDURE

A-4.1 Preparation of Internal Standard Solution

Weigh about 0.6 g of dibutylphthalate into a 100-ml volumetric flask and make up the volume to the mark with chloroform.

A-4.2 Preparation of Reference Standard Solution

Weigh 0.1 g of the reference standard hexaconazole into a 50-ml volumetric flask and add 10 ml of the internal standard solution (*see* A-4.1). Make up the volume to the mark with chloroform and shake well.

A-4.3 Preparation of Sample Solution

Weigh a quantity of sample so as to contain 0.1 g hexaconazole into a 50-ml volumetric flask and proceed as described in A-4.2.

A-5 ESTIMATION

Inject 1 μ l of the reference standard solution into the gas chromatograph followed by the sample solution with the help of syringe and measure the peak areas of standard and sample solutions. Compute the percentage of hexaconazole in sample.

A-6 CALCULATION

Hexaconazole content, percent by mass

$$= \frac{M_1 \times A_1 \times A_3}{M_2 \times A_2 \times A_4} \times P$$

where

M_1 = mass in g of reference standard hexaconazole,

A_1 = peak area of internal standard in the standard solution,

A_3 = peak area of hexaconazole in the sample solution,

M_2 = mass in g of sample taken for the test,

A_2 = peak area of hexaconazole in the standard solution,

A_4 = peak area of internal standard in the sample solution, and

P = percent purity of hexaconazole reference standard.

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This Indian Standard has been developed from Doc: No. FAD 1 (809).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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